

CLAIMS

1. Broaching tool for machining bore surfaces namely for introducing at least one groove, with a cutter head (5) having at least one cutter (69) and with
5 a body (3) bearing the cutter head (5), **characterized in that** the cutter head (5) can undergo a rotary motion and is disposed eccentrically in the body (3) and that the middle axis (65) of the cutter head (5) forms an acute angle α with the middle axis (7) of the body (3).
- 10 2. Broaching tool as defined in claim 1, **characterized in that** the cutter head (5) comprises a tool shank (73) which at its end is provided with a cutter collar (67) and which with its other, opposite end is rotatably disposed in the body (3).
- 15 3. Broaching tool as defined in claim 1 or 2, **characterized in that** the cutter head (5) is replacably disposed on the tool shank (73).
4. Broaching tool as defined in one of the preceding claims, **characterized in that** the at least one cutter (69) lies on an imaginary circular path around the
20 middle axis (65) of the cutter head (5).
5. Broaching tool as defined in one of the preceding claims, **characterized in that** there are provided several cutters (69) - preferably disposed at a distance from one another - that lie on an imaginary circular path around the
25 middle axis (65) of the cutter head (5).
6. Broaching tool as defined in one of the preceding claims, **characterized in that** the at least one cutter (69) has a guiding surface (95) which is inclined at an angle toward the middle axis (65) of the cutter head (5).
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7. Broaching tool as defined in one of the preceding claims, **characterized in that** the cutter head (5) has a guiding arrangement (79) with a guiding section.
- 35 8. Broaching tool as defined in one of the preceding claims 4 to 7, **characterized in that** the middle point (84) of the circular path of the at least one cutter (69) or the middle point (83) of the guiding section lies on the intersection of the middle axis (7) of the body (3) and the middle axis (65) of the cutter head (5).
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9. Broaching tool as defined in one of the preceding claims, **characterized**

in that the tool shank (73) is supported in the body (3) by means of a bearing arrangement (13) that absorbs radial and axial forces.

5 10. Broaching tool as defined in claim 9, **characterized in that** the bearing arrangement (13) has at least one - and preferably two - angular ball bearings (21, 23) and a grooved ball bearing (51).

10 11. Broaching tool as defined in one of the preceding claims, **characterized by** a cool-ant/lubricant system whereby a coolant/lubricant can be conducted through the body (3) and through the cutter head (5) to the at least one cutter (69).

15 12. Method for machining the surface of a bore, namely for introducing at least one groove, by means of a cutter head provided with at least one cutter and by means of a broaching tool with a supporting body, particularly by means of a broaching tool as defined in one of claims 1 to 11, **characterized in that** the cutter head is introduced into the bore in a work piece that is to be machined, and during the rotary motion of the body and a relative axial movement between the broaching tool and the work piece brings about a tumbling movement and a following movement that is induced by the at least
20 one groove formed in the bore surface.